

Date: Wednesday, 3/26/2008 1:26:38 PM
 User: Kim Johnston

Process Sheet

split

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : ROUND BILLET 17-4
Job Number : 38212	
Estimate Number : 10041	
P.O. Number :	Part Number : D6104007
This Issue : 3/26/2008 S.O. No. :	Drawing Number : D6104 REV B
Prsht Rev. : NC	Project Number : N/A
First Issue : 11 Type : MACHINED PARTS	Drawing Revision : B
Previous Run : 37966A	Material :
Written By : <u>18080326</u>	Due Date : 4/4/2008 Qty: 10 Um: Each
Checked & Approved By : <u>18080326</u>	
Comment : Est. A: 01.05.08 New Issue EC	

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 PG PURCHASING



Comment: PURCHASING

Issue P/O: 5994

a) Description: S.S round billet

b) Ø4.50" x 5.10" long

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)

e) One blank makes 2 parts

f) Material certification required

C208103126

(10)

2.0 D6104007P 17-4 SS Roundbar 4.50"OD



Comment: Qty.: 1.0000 Each(s)/Unit Total : 10.0000 Each(s)
 17-4 SS Roundbar 4.50"OD

3.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure material certification is attached

C208104104

(1)

4.0 QC6 DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

Ensure Material certification comply to Dwg D6104

C208104104

(1)

(1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08/04/04	40	<p>piece too long 200"</p> <p>N/A</p>						

NOTE: Date & initial all entries

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: ROUND BILLET 17-4

Job Number: 38212

Part Number: D6104007

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: CNC

08-04-07 (P)

6.0

QC21

FINAL INSPECTION/W/O RELEASE



08/04/08

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



mf

08-04-07

W

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

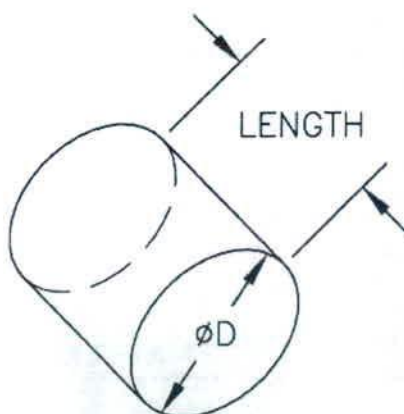
NOTE: Date & initial all entries



DESIGN RT	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29

SPECIFICATION CONTROL DRAWING



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 38212

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GLORIA MATERIAL TECHNOLOGY CORP. INSPECTION CERTIFICATE

台南縣新營市新中路35號1樓
TEL: (06)5520000
TAINAN, TAIWAN R.O.C.
TEL: (06)5520000
FAX: (06)5520088

61027
Zys.

Messrs:

Order No: 2007001068

Grade: 17-4 PH

P.O.NO.: 18305-000 OP

FILE NO: 2007004876-A

Size: 4.5"

Date: 07/31/2007

HEAT-Lot No: W1188-40

Weight: 1059.0KG 2334.69LB

P'cs: 3

Condition: HF-Solution Annealed-Peeled

Chemical Composition (wt%)

	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Nb+Ta
Min.						3.0	15.0		3.0	0.15
Max.	0.07	1.00	1.00	0.040	0.025	5.0	17.5	0.50	5.0	0.45
Result	0.03	0.47	0.61	0.022	0.012	4.3	15.7	0.11	3.2	0.23

	N	Nb	Ta
Min.		0.15	
Max.		0.45	
Result	0.0205	0.22	0.00268

Mechanical Properties Spec.

	Hardness(1/2R)	Grain Size	H900-Hardness(Ave.)
Spec.Min.			1/2R L
Spec.Max.	363HBW		40HRC
Result	323HBW	7.5	42.8HRC

This report is a copy of original
mill certificate and verifies
that the product meets the
requirements as originally ordered

DATE: August 1st VERIFIED BY: cmp

Tensile Test

	Elongation(A) 1/2R L	Tensile Strength(Rm) 1/2R L	Yield Strength(Rp) 1/2R L	Reduction of Area(Z) 1/2R L
Unit	%	ksi	ksi	%
Min.	10	190	170	
Max.				
Result	18	198	176	58

Heat Treatment Condition

Condition	Temperature	Time/hour	Treatment
SOLUTION	1900°F	4.6	PAST AIR COOL

Non-Metallic Inclusions :AMS 2303E

	Frequency	Severity
Max.	0.4	0.35
Result	0	0

Specification:

- 1.ASTM A370-06, A484-06b, A564-04, A388-05.
- 2.AMS 5643Q, 2303E (Mag particle test).
- 3.ASME SA564(04), SA484(04).
- 4.EN 10204/3.1.B.
- 5.ENERGY SPEC. SS1. REV.3



ISO 9001:2000



Reg. No. 020095



CERT. No. 52851

ISO 9001:2000-AS9100B



CERT-0020063-1054251

Mars Wang
QA SECTION
Atkins 12/07

Our quality and environment management systems have been certified by AS9100, ISO9001 QMS and 14001 EMS.
We hereby certify that the material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification.
We hereby the Inspection Certificate comply with EN 10204 3.1.



GLORIA MATERIAL TECHNOLOGY CORP.
INSPECTION CERTIFICATE

台南縣新營市新中路35號1樓
TEL: (06) 6520000
TAINAN, TAIWAN, R.O.C.
TEL: (06) 6520000
FAX: (06) 6520088

Messrs:

Order No: 2007001068 Grade: 17-4 PH
FILE NO: 2007004876-A Size: 4.5"
HEAT-Lot No: W1188-40 Weight: 1059.0KG 2334.69LB
Condition: HF-Solution Annealed-Peeled

P.O.NO.: 18305-000 OP

Date: 07/31/2007

P'cs: 3

Remark:

1. MANUFACTURING PROCESS: BAF+LHF+VOD, FORGED OR HOT ROLLED.
2. SOLUTION TREATMENT AT 1900°F, FAST AIR COOLING TO BELOW 90°F.
3. MATERIAL IS FREE FROM MERCURY CONTAMINATION.
4. MACROSTRUCTURE OK.
5. MICROSTRUCTURE OK.
6. NO REPAIR BY WELDING.
7. ULTRASONIC TEST OK.
8. MECHANICAL PROPERTIES TESTED AS PER H900 CONDITION.



ISO 9001:2000



Reg. No. 020095



CERT. No. 020051

ISO 9001:2000+AS9100



CERT. 0000048-1054211

Mars Wang
QA SECTION
Mars Wang

Our quality and environment management systems have been certified by AS9100, ISO9001 QMS and 14001 EMS.
We hereby certify that the material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification.
We hereby the Inspection Certificate comply with EN 10204 3.1.

ASA

ALLOYS DIV. OF CSM INC.

81 STEINWAY BLVD., ETOBICOKE, ON M9W 6H6
TEL: (416)213-0000 TOLL-FREE: (800)387-9166 FAX: (416)213-9507

**** DELIVERY NOTE ****

SALES ORDER

0404683

SOLD TO:

MAGNA INOXYDABLE STAINLESS INC
525 MELOCHE AVENUE
DORVAL, QUEBEC

SHIP TO:

SAME

H9P 2W2

SPECIAL INSTRUCTIONS

12

SALES ORDER		CUSTOMER CODE		CUSTOMER PURCHASE ORDER		CUSTOMER TELEPHONE NO.		CUSTOMER FAX NO.	
0404683		MAGST		073922-AD1		514 631-1211		514-631-2202	
SHIP VIA		TERMS		DATE ORDERED		DATE REQUIRED		DATE SHIPPED	
OUR TRUCK		NET 30 DAYS		Mar-27-08		Mar-28-08		01.04.08	
ASA QUALITY RELEASE REQUIRED <input type="checkbox"/>				PREPAID <input type="checkbox"/>		COLLECT <input type="checkbox"/>			
QUANTITY		UNIT	HEAT NUMBER	DESCRIPTION	QUANTITY SHIPPED	PRICE PER	PLANT INSTRUCTIONS		
ORDERED	BACKORDER								
350		lbs	244617 RD1743.250RT	DART 166762 EB (12'-11") 17-4 ANN 3 1/4 DIA RT X 12'5" 62421 MUST USE HEAT 277617	3704	IPC	STK		
259		lbs	240813 RD1744.500RT	17-4 ANN 4 1/2 DIA RT X 4'9-1/2" DROP 61029 MUST USE HEAT 240813					
				SUPME3 166777 DM					
				Continued					

NUMBER OF BDL'S: 1 BDL + MTR'S WITH ORDER ☐ MAIL ☐ FAX ☐ HEAT NO. STAMP ONE END ☐

Grade Chk: ☒ Dimension Chk: ☐

SALES COPY 4

EDMONTON

20 Challenger Cr Sherwood Park, AB
TEL: (780) 416-6422 FAX: (780) 416-7594
TOLL-FREE: (800) 465-2389

WINNIPEG

61 PARAMOUNT RD, WIN, MB R2X 2W6
TEL: (204) 953-1910 FAX: (204) 489-8542
TOLL-FREE: (888) 671-0960

SARNIA

1195 MICHENER RD, ON N7S 4W3
TEL: (519) 336-1936 FAX: (519) 336-3664
TOLL-FREE: (888) 272-8265

SUDBURY

1351J KELLY LAKE RD ON, P3E 5P5
TEL: (705) 522-6773 FAX: (705) 522-2017
TOLL-FREE: (888) 387-9166

MONTREAL (MAGNA STAINLESS)

525 AVE MELOCHE, DORVAL, PQ
TEL: (514) 631-1211 FAX: (514) 631-0013
TOLL-FREE: (800) 363-6646

